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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/553,313

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EXAMINER

KRYCINSKI, STANTON L

ART UNIT

PAPER NUMBER

4174

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,313	Applicant(s) CHOI, CHEON SOON	
	Examiner Stanton L. Krycinski	Art Unit 4174	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/19/2005</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Line 20 and 22 of page 3, "side" should read --sides--.

Line 21 and 23 of page 3, "is" should read --are--.

Line 10 of page 4, "contrapsoes" should read --contraposes--.

Line 4 of page 6, "first" should read --fourth--.

Line 24 of page 8, "28,28" should read --27, 28--.

Appropriate correction is required.

Claim Objections

2. Claims 1, 3-4, 6-7, and 12-13 are objected to because of the following informalities:

Line 6 of claim 1, it is suggested "hook" be changed to --hooks--.

Line 2 of claim 3, it is suggested "a distance" be changed to --a horizontal distance--.

Line 3 of claim 3, it is suggested "has respective" be changed to --has a respective--.

Line 3 of claim 3, it is suggested "bottom of each slot" be changed to --bottom of the upper area of each slot--.

Line 3 of claim 4, it is suggested "slot" be changed to --slots--.

Line 4 of claim 4, it is suggested "any round opening" be changed to --any of the round openings--.

Line 2 of claim 6, "the pin member" lacks antecedent basis, and is suggested to be changed to --a pin member--.

Line 2 of claim 7, it is suggested "hook" be changed to --hooks--.

Line 3 of claim 7, it is suggested "the hook" be changed to --the hooks--.

Line 3 of claim 7, it is suggested "contrapsoes" be changed to --contraposes--.

Line 3 of claim 12, "the one surface" lacks antecedent basis, and is suggested to be changed to --a one surface--.

Line 3 of claim 13, "the one surface" lacks antecedent basis, and is suggested to be changed to --a one surface--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 recites "an inner vertical end of the hook is inclined outward along a direction from top to bottom." It is not clear what the "inner vertical end" of the hook is, and what direction "outward" is in relation to the vertical direction. For the purpose of this action, the "inner vertical end" is the inner side of the vertical portion of the hook when viewed from the side profile, and the "outward" direction is towards the interior of the column when the hook is inserted into the slot on the column.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 10, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Konstant et al. (US Patent No. 4,285,436).

7. In regards to Claim 1, Konstant et al. teaches a prefabricating rack frame (11, Figure 1) comprised of a column (13, Figure 1) made of a steel tube (Column 2, Line 50-68), a cross member (15, Figure 1) made of bent steel plate (Column 3, Line 41-43), by which a square is formed, and multiple shelf plates (49) are placed as shown in Figure 1. The column (13) has plural slots (25) along a longitudinal direction at an even interval, and the cross member (15) has a pair of hooks (33, Figure 2) to be inserted in the respective slots (25) (Column 3, Line 25-27), and a location restrictor (41, 43, Figure 2) formed between the upper and lower hook and bent rectangular to the hooks (33), and tightly contracted on the outer surface of the column (13) (Column 3, Line 38-41).

8. In regards to Claim 10, Konstant et al. teaches the cross member (15) comprised of a vertical web (27, Figure 3) having a hook (33) and the location restrictor (41) at each longitudinal end of the vertical web as shown in Figure 2, and an upper/lower flange (29, 31, Figure 3) formed at the upper/lower vertical end of the vertical web and bent perpendicular to the vertical web (Column 3, Line 6-10), and opposite to the extending direction of the location restrictor (41) as shown in Figure 2.

9. In regards to Claim 12, Konstant et al. teaches a square pipe used a the column (13) (Column 2, Line 50-68), and the cross section of the location restrictor (41) and the upper/lower flange (29, 31) has a rectangular shape that is fully contacted to the surface of the square pipe (13) as shown in Figure 3-5.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 1, 3-5, 7, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohlin (US Patent No. 3,647,079) in view of Vargo (US Patent No. 4,023,683).

12. In regards to Claim 1, Ohlin teaches a prefabricating rack frame comprised of a column (1, Figure 2), a cross member (4, Figure 2) made of a bent plate, by which a square is formed, and multiple shelf plates could be placed as shown in Figure 1. The prefabricating rack frame comprises the column (1) having plural slots (9, 10, Figure 2) along a longitudinal direction at an even interval, and a cross member (4) having a pair of hooks (34, 35, Figure 4 and 54, 55, Figure 7) to be inserted into respective slots (Column 2, Line 43-46 and Column 3, Line 6-12), and a location restrictor (33, Figure 3) bent rectangular to the hook and tightly contracted on the outer surface of the column (1) (Column 2, Line 62-64).

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13. Ohlin fails to specifically teach a column (1) made of a steel square tube, and a cross member (4) made of steel. Vargo teaches a prefabricating rack frame (A-C, Figure 1-3) comprised of a column (A, Figure 1-3), a cross member (B, Figure 1) forming shelves (Claim 5, Line 4-5). The rack frame (A-C) comprises a column (A) having plural slots (30, Figure 1) along a longitudinal direction at an even interval, and a cross member (B) having a pair of hooks (52, Figure 3) inserted in the slots (30), and a location restrictor (D, Figure 1) formed between the upper and lower hook (52) and bent rectangular to the hooks, and tightly contracted on the outer surface of the column as shown in Figure 1 and 2. The column (A) is formed to a generally U shaped cross-section with flanges (13) on the rear section (Column 3, Line 39-48) which can extend completely across the back of the column (A) (Column 4, Line 62-65) to form a square tube. Vargo further teaches the material of the column (A) can be formed from sheet steel (Column 3, Line 49-50), therefore it would have been obvious to one of ordinary skill at the time of the invention as made to have used steel to form the column and cross member of Ohlin's invention as is commonly used in the art.

14. In regards to Claim 3, Ohlin fails to teach a slot with an inverse shape in which a distance of an upper area is longer than that of a lower area, and has respective parallel portion that is measured from the bottom of the upper portion of each slot, and the hook is force-fitted into the parallel portion (Figure 17 of application). Vargo teaches a slot (30, Figure 1) with an inverse trapezoid shape with an upper area having a greater width than the lower area, and which can be key-hole shaped (an upper portion, and a respective parallel portion below) (Column 4, Line 38-42) to force-fit a hook (52, Figure

3) (Column 5, Line 19-30). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to include a variety of slot shapes as taught by Vargo (Column 4, Line 38-42).

15. In regards to Claim 4, Ohlin teaches the column (1) having a pair of round openings (14, 15, Figure 2) formed at each right and left of the slots (9, 10) in a parallel way, and the location restrictor (33, Figure 3) has a hole (31, 32, Figure 5) and the hole overlaps any of the round openings (14, 15), in which a screw (16, 17, Figure 3) is inserted to any round opening (14, 15) through the hole (Column 2, Line 60-64).

16. In regards to Claim 5, Ohlin teaches the column (1) having a pair of round openings (14, 15, Figure 2) formed near the slot (9, 10) of the column (1) in which a screw (fixing pin) (16, 17, Figure 3) is inserted to any round openings (14, 15) through the hole (Column 2, Line 60-64). The fixing pin (16, 17) has a head (top of the capscrew) formed at an end that is contacted at the location restrictor (33, 52) as shown in Figure 3.

17. In regards to Claim 7, Ohlin teaches a hook (34, 35, 36, Figure 4) with an inner vertical end (inner side of the vertical portion of the hook when viewed from the side profile) inclined outward (towards the interior of the column) along a direction from top to bottom so the outer side of the location restrictor (33, Figure 3) is contraposed against the wall of the column (2) so as to squash (the location restrictor is resting against the outer surface of the column) as shown in Figure 3, when the hooks (34, 35, 36) are inserted in the slots (10) (Column 2, Line 41-46).

18. In regards to Claim 10, Ohlin teaches a cross member (4, Figure 2) comprised of a vertical web (25, Figure 5) (Column 1, Line 71) having a hook (34, 35, Figure 4 and 54, 55, Figure 7) and the location restrictor (33, 52, Figure 3) at each longitudinal end of the vertical web, and an upper flange (45, 26, Figure 5) and lower flange (47, 27, Figure 5) formed at the upper/lower vertical end of the vertical web (25) and bent perpendicular (portion 26 and 27 of the two flanges) to the vertical web (25) and opposite to the extending direction (portion 45 and 47 of the two flanges) of the location restrictor (33) as shown in Figure 5.

19. In regards to Claim 11, Ohlin teaches a cross member (4, Figure 2) comprised of a vertical web (25, Figure 5) (Column 1, Line 71) having a hook (34, 35, Figure 4 and 54, 55, Figure 7) and the location restrictor (33, 52, Figure 3) at each longitudinal end of the vertical web, and an upper flange (45, 26, Figure 5) and lower flange (47, 27, Figure 5) formed at the upper/lower vertical end of the vertical web (25). The upper flange (45, 26) has portion (26) bent perpendicular to the vertical web (25) and a portion (45) bent away from the location restrictor (33). The lower flange (47, 27) has a portion (27) bent perpendicular to the web (25) and in the same direction of the location restrictor (33).

20. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konstant et al. (US Patent No. 4,285,436) in view of Jay (US Patent No. 3,195,735). Konstant et al. fails to teach a slot with an upper and lower portion with the lower portion having a narrower width than the upper portion, and a slant portion formed between the upper and lower portion. Jay teaches a slot (6, Figure 3) with an upper portion having enough room for the hook to be inserted and having vertical sides which are parallel to each

other, and a lower portion having narrower width than that of the upper portion for the hook to be force-fitted, and having vertical sides which are parallel to each other, including a slant portion (24, Figure 4) between the upper and lower portion (20, 22, Figure 4). It would have been obvious to one of ordinary skill at the time of the invention was made to provide a slant portion between an upper and lower slot portion to define a cam means to engage the necked-down portion (35, Figure 2 of Konstant et al.) of the hook (33, Figure 2 of Konstant et al.) with an interference fit (Column 4, Line 16-20 of Jay).

21. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohlin (US Patent No. 3,647,079) in view of Vargo (US Patent No. 4,023,683) as applied to claim 1 above, and further in view of Vargo (US Patent No. 5,180,068). Ohlin modified by Vargo (US Patent No. 4,023,683) fails to teach a pin member with a thread portion having a fastigiated point (narrowing toward the top). Vargo (US Patent No. 5,180,068) teaches a pin (30, Figure 4) fastened to a column (12, Figure 2) through an opening (14, Figure 2). The pin has a threaded portion (36) with a fastigiated point as shown in Figure 4. It would be obvious to one of ordinary skill at the time the invention was made to provide a pin with a threaded portion and a fastigiated point to allow a nut (32) to be threaded on the pin and tightened to securely attach a cross member to a column (Column 9, Line 50-53).

22. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohlin (US Patent No. 3,647,079) in view of Vargo (US Patent No. 4,023,683) as applied to claim 1 above, and further in view of Denny (US Patent No. 3,637,087).

23. In regards to Claim 8, Ohlin modified by Vargo fails to teach the cross member having a pit and reinforcement rib, where the pit is formed at the outer corner where each longitudinal end of the cross member meets the foot of the location restrictor, and the reinforcement rib is provided at the inner corner of the location restrictor and its configuration counterposes the pit. Denny teaches a cross member (24, Figure 1) with a location restrictor (93, Figure 9) bent rectangular to the hook (82, Figure 9). The cross member (24) has a pit (100, Figure 9) and a reinforcement rib (94, Figure 10). The pit is on the outer corner (facing up from the hook) where each longitudinal end (21, Figure 8) of the cross member (24) meets the foot of the location restrictor (93), and the reinforcement rib (94) is provided at the inner corner (facing down to the hook) of the location restrictor (93), counterposing the pit (Column 6, Line 61-72).

24. In regards to Claim 9, Denny further teaches the pit (100) and reinforcement rib (94) formed perpendicular to the border line of the location restrictor (93) as shown in Figure 10. It would have been obvious to one of ordinary skill at the time of the invention was made to include a pit and reinforcement rib on the location restrictor (93) to strengthen the load bearing capability of the location restrictor (93) (tongue juncture) (Column 7, Line 44-52).

25. Claim 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Konstant et al. (US Patent No. 4,285,436) in view of Winter et al. (US Patent No. 4,852,839). Konstant et al. fails to teach a round pipe used as the column (13), and the cross section of the location restrictor (41) and the upper/lower horizontal flange (29, 31) having an arc that is fully contracted to the surface of the round pipe column. Winter et

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al. teaches a prefabricated rack frame (10, Figure 1) with a round pipe as the column (20, Figure 1), and the supporting structure (40, Figure 2) of the cross member (30, Figure 2) has an arc that is fully contacted to the surface of the column (20) as shown in Figure 2. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have formed the supporting structure (flanges, location restrictor) of Konstant et al.'s invention into an arc to provide a coupling between the round pipe (20, Figure 3 of Winter et al.) as taught in Column 2, Line 38-44 of Winter et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanton L. Krycinski whose telephone number is 571-270-5381. The examiner can normally be reached on Monday-Thursday, 7:30 AM to 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly D. Nguyen can be reached on 571-272-2402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. L. K./
Examiner, Art Unit 4174

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